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IMAGE MODULE

BACKGROUND OF THE INVENTION

Field of the Invention

5 The present invention relates to a small-sized thin image module based on an automatic lens focusing method.

Description of the Related Art

10 In general, an image module is used for digital cameras and picture telecommunication terminals, in which the image module carries out a function of image capture, making it easier to connect to the picture telecommunication or an intended content through connecting the image module to a computer. For the reason, the use of the image module has been gradually increasing.

15 Especially, as a new telecommunication method using a computer is under development and an infra therefore is being built, the image module is needed more than ever.

20 Generally, an image sensor for the digital camera and the picture telecommunication terminal can be classified into a charge coupled device (hereinafter, referred as CCD) system and complementary metal-oxide semiconductor (hereinafter, referred as CMOS) system.

25 The typical CCD is an optical system based on an analog circuit. According to the CCD system, when a light is transmitted from a lens to a plurality of cells,

electric charge thereof is saved in each cell. Through the intensity of the electric charge, the intensity of the light (or brightness) is detected, and the light is sent to an analog/digital converter to exhibit colors.

5 On the other hand, the CMOS image sensor follows the exactly same method employed in a CMOS semiconductor process, system-on-chip. Thus, in accordance with the CMOS system, a circuit for processing an analog signal and a digital signal is integrated in a semiconductor.

10 Since the CMOS image sensor is manufactured by a general CMOS process, it is relatively advantageous in terms of production cost compared with the CCD image sensor that undergoes a complicated process at a low yield. However, the CMOS has a small region for processing a video
15 signal, being unable to manifest fine images and distinguish elaborate colors, so it is still behind of the CCD in picture qualities.

 The CMOS image sensor for the reasons described above has been disregarded in the field of digital cameras in
20 overall. With a rapid development in the technology of the CMOS image sensor, however, the CMOS is expected to replace the CCD in most of application equipment in near future, and the CCD will be used mainly for the parts requiring a high resolution image instead.

25 Keeping with the recent trend of the technology, the

present invention provides a lens including an image sensor described above, particularly an automatic focus adjuster. A construction of a lens according to a related art is now explained with reference with a figure.

5 Fig. 1 is a systematic view of an image sensor in a digital camera and a picture telecommunication terminal and a focus adjuster of a lens according to a related art.

As shown in Fig. 1, the lens focus adjuster in the related art includes an image packaging that includes a
10 sensor 1 for sensing a picture image, a substrate 2 including the sensor, a sensor cover 3 covering the sensor and the substrate from the outside and a sensor filter 4 for blocking light from the outside and passing the light between the sensor cover and the sensor only; a housing 5
15 having a screw tap combined with the image packaging; a barrel 6 including a screw tap 6a connected to an inner screw tap 5a of the housing 5; and a lens 7 inside the barrel.

The operation of the focus adjuster of the lens
20 according to the related art is also explained below with reference with Fig. 1.

First of all, if a user wishes to adjust the focus, as illustrated in Fig. 1, he or she can adjust a distance to an object manually by forming the screw tap 6a at the
25 peripheral side of the barrel 6 including the lens 7 inside.